

(No Model.)

J. L. THOMSON & J. J. UNBEHEND.

PROCESS OF MAKING LACING STUDS.

No. 435,907.

Patented Sept. 2, 1890.

Fig. 1.

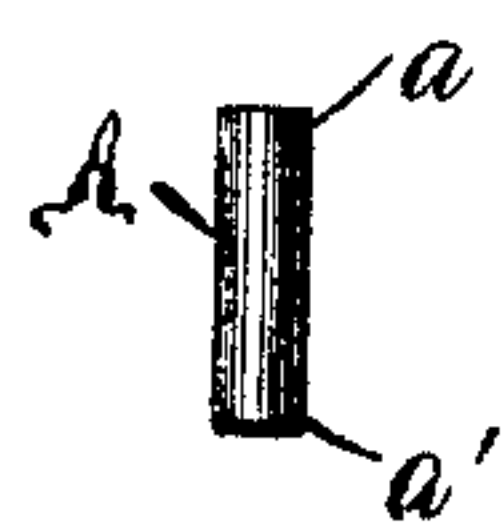


Fig. 2.

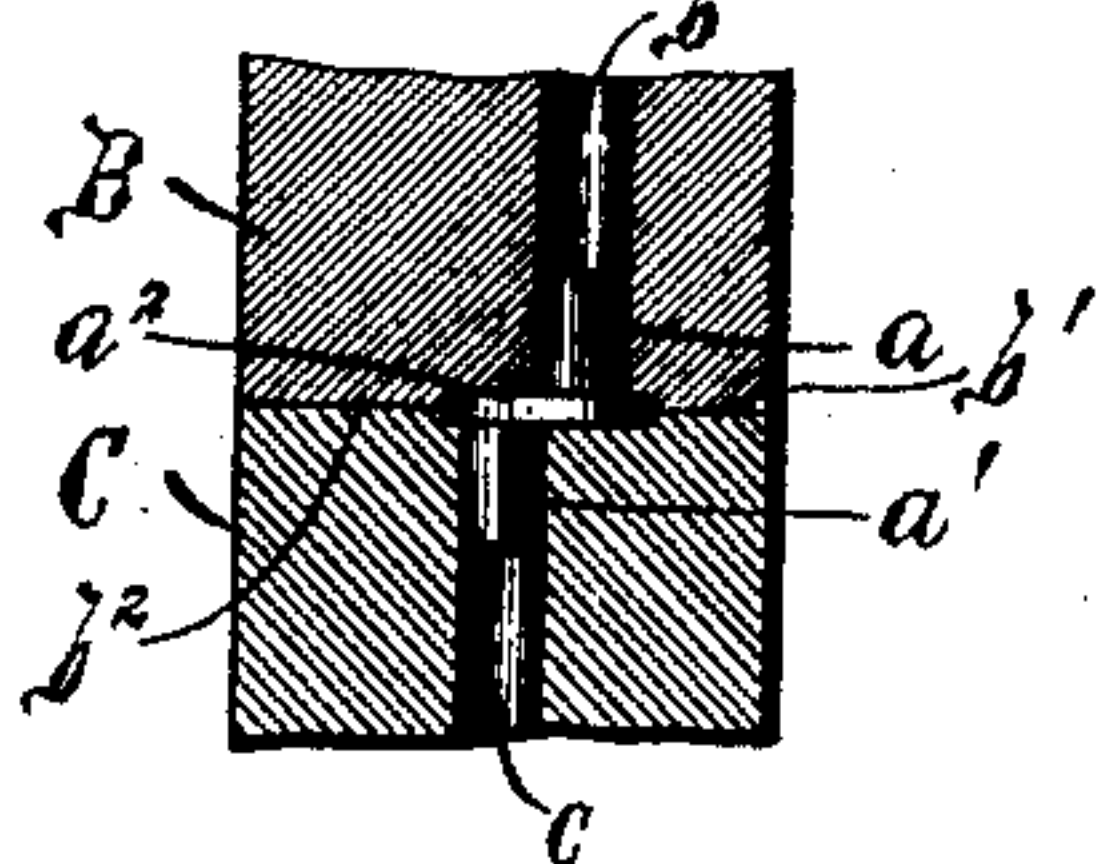


Fig. 3.

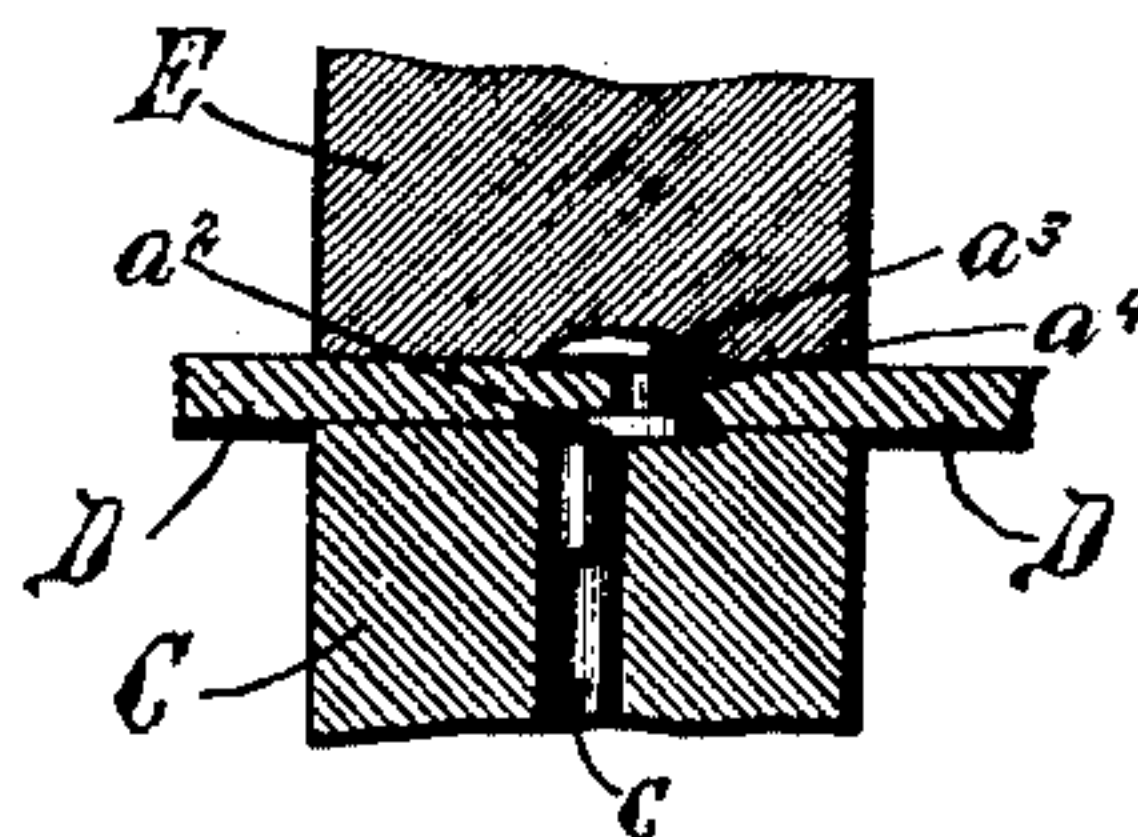


Fig. 4.

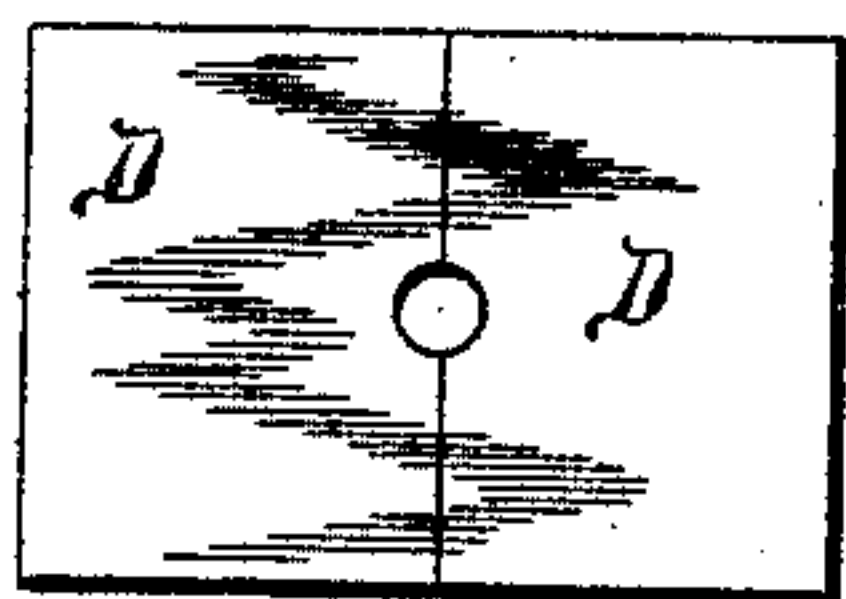


Fig. 5.

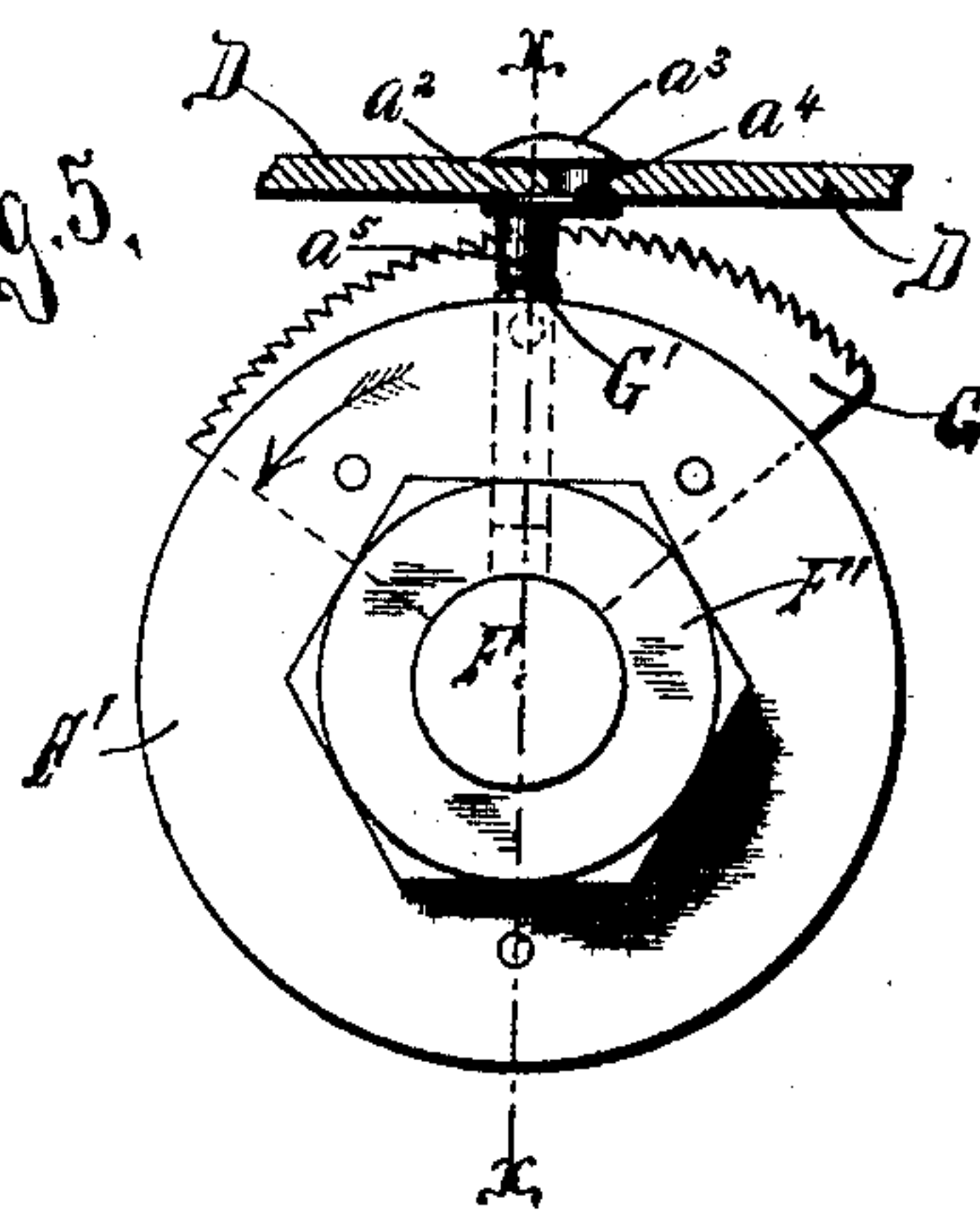


Fig. 6.

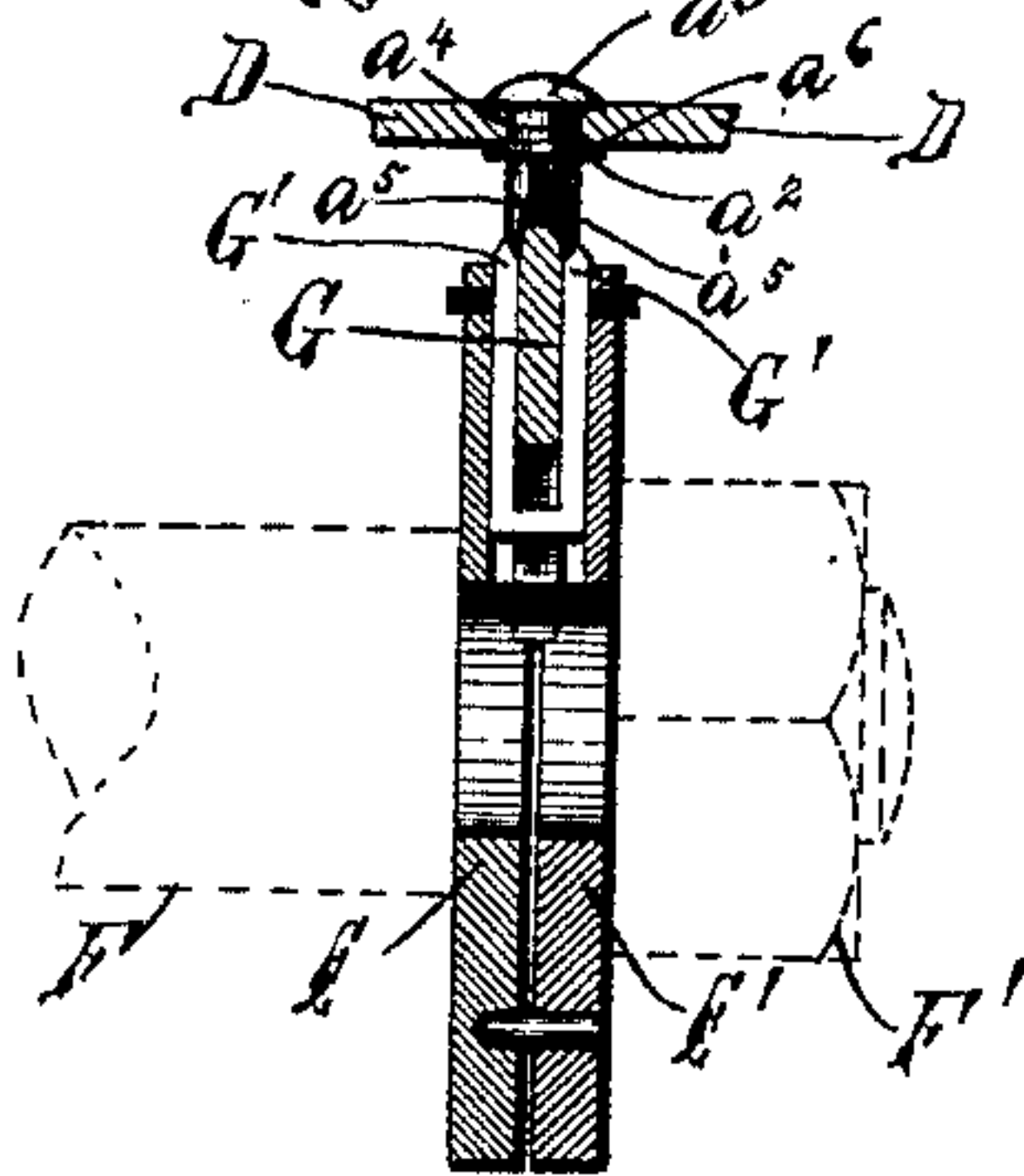
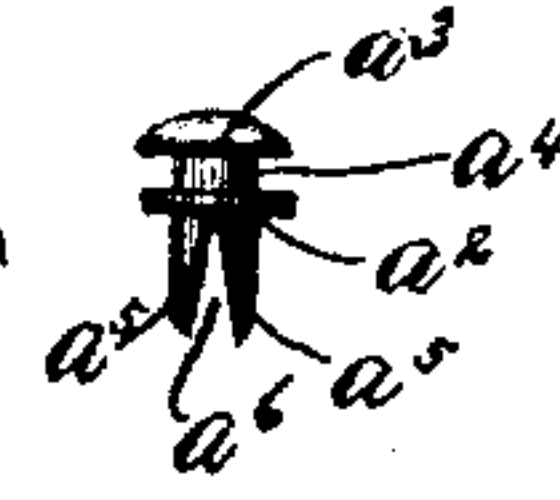


Fig. 7.



Fig. 8.



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UNITED STATES PATENT OFFICE.

JUDSON L. THOMSON AND JACOB J. UNBEHEND, OF SYRACUSE, NEW YORK.

PROCESS OF MAKING LACING-STUDS.

SPECIFICATION forming part of Letters Patent No. 435,907, dated September 2, 1890.

Application filed June 23, 1890. Serial No. 356,398. (No model.)

To all whom it may concern:

Be it known that we, JUDSON L. THOMSON and JACOB J. UNBEHEND, of Syracuse, in the county of Onondaga, in the State of New York, have invented a new and useful Process of Making Lacing-Studs, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

Our invention relates to improvements in the process of producing lacing-studs, and has for its object the production of a simple and effective method whereby lacing-studs are produced from solid wire automatically, readily, and economically; and it consists, essentially, in dividing the wire into sections, flanging a central plate or head at the central portion of the section, offsetting the opposite extremities of the section one from the other, removing a portion of one extremity to form securing-prongs, and upsetting the opposite extremity to form a loop, all as hereinafter more particularly described, and pointed out in the claims.

In describing this invention reference is had to the accompanying drawings, forming a part of the specification, in which like letters indicate corresponding parts in all the views.

Figure 1 represents an elevation of a section of wire. Fig. 2 represents a sectional view showing the first step in our improved process, which consists in flanging the central head or plate and offsetting the opposite extremities of the wire section. Fig. 3 is a sectional view showing the second step, which consists in upsetting one extremity of said section and forming the head or upper extremity of the loop for engaging the lace or cord. Fig. 4 is a detail view illustrating in plan the dies supporting the upper extremity of the wire section during the formation of the loop. Fig. 5 is an elevation, partly in section, illustrating the final operation of removing a portion of the lower extremity of the wire section to form the securing-prongs of our improved lacing-stud. Fig. 6 is a sectional view taken on line $x x$, Fig. 5; and Figs. 7 and 8 are elevations of the completed lacing-stud taken in planes at right angles to each other.

This process is designed for producing from

solid wire the improved lacing-stud set forth in our application of even date herewith.

A represents a section of wire of suitable length and diameter to form the desired size of lacing-stud. This section is cut from a continuous wire coil by means of suitable cutting mechanism not necessary to herein illustrate or describe, since it is evident that our invention is not limited to any particular form of mechanism for cutting the wire into sections, and that in carrying out the same any desired form of such mechanism may be used.

B and C represent dies having recesses b and c offset or out of alignment with each other. As shown in Fig. 2, the opposite extremities a and a' of the wire section are engaged with the separate recesses b and c of said dies, and are thereby offset one from the other. During the aforesaid operation upon the wire section, a central head or flanged plate a^2 is provided thereupon, as shown in Fig. 6. As illustrated in the drawings, this head is formed by means of separate slight recesses in the opposite dies B and C, but it is obvious that if desired the same may be formed by preventing the direct contact of the adjacent faces b' and b^2 of said dies B and C. Immediately after the formation of the plate a^2 the upper die B is removed and a pair of dies D are actuated to rest upon said plate a^2 and embrace the lower portion of the upper extremity of the wire section, whereupon a suitable die E is contacted with the top of the extremity a of the section A and upsets the same into the head a^3 . This head a^3 is preferably of the same area and form as the plate a^2 , and its forward extremity projects beyond that portion of the wire section interposed between the head a^3 and the plate a^2 , which portion thus becomes the neck a^4 of the lacing-stud. After the formation of the head a^3 , or, in other words, the completion of the loop of the lacing-stud, the securing-prongs are formed by removing a portion of the lower extremity a' of the wire section, and preferably by means of the cutter shown in Figs. 5 and 6, and specifically described and claimed in our pending application, Serial No. 295,043, filed December 3, 1888.

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